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PRACTICAL APPLICATIONS OF PSYCHOLOGY TO THE PROBLEMS OF A CLEARING HOUSE¹

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I do not intend today to enter into a discussion as to the relative importance of psychological study as compared with other lines of investigation in the study of women convicted of crime. I am assuming that there is general agreement as to the importance of sociological investigation, medical examination of a general sort and more particularly careful psychiatric study, with bio-chemical investigation when possible, and that a discussion of distinctly psychological problems implies no neglect of these others quite equal in importance. To indicate the part that psychology may play I have chosen to present certain results of the study of women committed to the New York State Reformatory for Women at Bedford Hills, during the past year. The work represents the joint plan and the data gathered is the result of the joint effort of Dr. Mary H. S. Hayes and myself. It is only this particular formulation of it for which I assume individual responsibility. It should be understood further that the present discussion concerns itself entirely with adult women between the ages of 16 and 30 inclusive, with the exception of two women over 30 years of age.

Pleasant as it would be if we could claim that psychology were ready with adequate instruments for the solution of the problems of a clearing house, we must admit that no such claim can fairly be made, now at least. The methodology of this type of investigation is still in process of construction and must therefore remain an object of careful scientific scrutiny for some years to come. That this fact is now forced to the front by the very disagreements among psychologists as to the methods which yield the largest returns is one of the most promising aspects of the present situation.

One result of this situation is the fact that the actual problems before any institution of the type of a clearing house shift from year to year. Diagnosis and practical advice on the individuals brought before it for examination represent of course the prime aim and constant function of such an institution. But in order that this

¹Read at the National Conference of Charities and Correction, Indianapolis, Ind., May 16, 1916.

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function be performed with increasing satisfaction and reliability, it is essential that data be so collected and utilized that from them further evidence of the value or the uselessness of particular methods may be obtained. *A priori* reasoning alone will not hold in this any more than in any other field where facts are in question. Our most cherished theories as to what a normal person will do and what a moron will fail to do must be subjected to the most rigid experimental proof, and those tests which seem eminently reasonable but fail to pass this test themselves must be cast aside. This rigid experimental trying out of tests constitutes then the shifting and variable phase of the work of a clearing house. For we do reach, one by one, experimental answers to our problems, and may then apply ourselves to other questions which have merely been waiting in the background for their turn to come.

One of the most pressing of the problems incidental to the work of a clearing house now calling for solution is that of general diagnostic tests for distinguishing between the feeble-minded and the normal and for further determining the degrees of feeble-mindedness. For this purpose the Binet-Simon Scale deserves first consideration in virtue of its character as a pioneer method, in virtue of the extensiveness of its use and in virtue of the number of variants upon it which have been worked out.

In no phase of the situation regarding the use of mental tests has a more interesting development occurred than in that concerned with the question of the usefulness of this series of tests. First we had the enthusiastic hailing of the Scale as an instrument of marvelous exactness so skillfully adjusted that it would give trustworthy results even in the most untrained hands, and "Binet" testers, prepared to diagnose the mentality of any individual on a ten or fifteen minute examination, began to flood the country. The reaction from this was inevitable and in many quarters extreme. The tests were cast aside by many as not even worthy of scientific consideration. Especially was this true of any attempts to use the method with adults. A third stage in the history of these tests seems now happily under way, namely, the stage of actual scientific examination to determine what value, if any, they do possess, alterations more or less extensive in accordance with the results of such examination and interpretation of results in the light of careful standardization with unselected groups.

To be concrete I may mention the two important modifications of this scale, which are sufficiently radical to constitute essentially new scales and sufficiently well grounded in scientific fact so that they

deserve recognition: the Yerkes-Bridges Point Scale and the Stanford Revision formulated by Dr. Lewis Terman and his associates. The former is well enough known by this time so that a detailed description of it would be superfluous. Suffice it to say that it consists essentially of 19 of the Binet tests and one other—the analogies; that its chief point of distinction lies in the methods of crediting individual tests and of formulating the total results, though only second in importance to these changes is the fact that definite and detailed instructions are provided for the giving and the evaluation of each test which makes possible the comparison of results of different investigators with more assurance that they actually represent the same methods than was ever possible with the original Binet series.

In the Stanford Revision likewise we have the advantage of definite specific instructions for each test. The series, as a whole, is organized like the original Binet as an age scale and differs from it chiefly in the actual tests used. Old tests have been modified and rearranged, some have been dropped, and many new tests have been added, especially in the upper years of the scale. As at present formulated there are tests for every year up to ten and beyond that for 12, 14, 16 and 18 years, 16 years being considered “average adult.”

With the Bedford group now under consideration, we have applied a combination Binet method which has enabled us to check up the results for each girl as though she were being examined by the simple Binet Scale in its original (1911) form, or by the Goddard 1911 Revision, or by the Yerkes-Bridges Point Scale or by the Stanford Revision. The results of these have seemed interesting and instructive, when we consider them in the light of the standards formulated by the sponsors of each of these forms.

Proposed Standards for Application of Tests of the Binet Type to the Problem of Sub-Normality in Adults.

Three proposed standards for interpretation of the scale in either its original form or that of the Goddard Revision call for consideration. The first of these we may pass over lightly as having only historical interest now, at least so far as scientific backing is concerned, namely, that which classes all who fail to attain a rank of twelve years as feeble-minded. This has been so universally discarded at the present time that it is unnecessary to point out its weaknesses. The fact that it failed to justify itself when applied to groups of unquestionably normal adults was the conclusive argument against it. With Dr. Goddard's discarding of the 15-year and adult tests as un-

satisfactory it became especially apparent that it was absurd to apply this standard to questionable cases, involving as it did ranking any adult as feeble-minded who failed on any one of the Binet tests.

A second and more conservative standard is that offered by Dr. Samuel Kohs as the result of his investigations in the Chicago House of Correction.³ He proposes to designate as feeble-minded all adults who fall below 10 4/5 years mentally and as normal all who rank above 11 2/5 years, considering the mental ages from 10 4/5 to 11 2/5 years inclusive, a borderline range for which further tests are necessary to determine whether the given subject is feeble-minded or normal.

Still more conservative is the standard proposed by Dr. Wallin,⁴ which in fact many of us have been tentatively using for some time, pending a more satisfactory solution of the problem of appropriate standards for adults. By this standard only those who rank below ten years mentally can be called feeble-minded with certainty.

For the Yerkes-Bridges Point Scale no standards of normality have been definitely laid down. Two tentative suggestions have been furnished which invite our attention, however. The first of these is embodied in the following statement made by Dr. Yerkes: "All of the data presented thus far, and the special measurements which have been discussed, indicate that the adult, or more exactly, the individual sixteen years or more in age, who attains a score of less than 75 points is so far below the average for his group as to be seriously handicapped by his intellectual characteristics. We should expect of the normal adult a score ranging between 75 and 100 points, and in the event of a record of less than 85 points, it is important to consider the possible significance of language difficulties, timidity, bad physical condition, and so on."⁵

Dr. Haines, of the Bureau of Juvenile Research of Columbus, has recently offered another standard for adults based on what he has called the "coefficient of mental ability,"⁶ rather than on the actual number of points, the coefficient of mental ability being the ratio between the actual number of points gained and the norm as represented

³Kohs, S. C. The Practibility of the Binet Scale and the Question of the Borderline Case, Bulletin Number 3, Publications of the Research Department, Chicago House of Correction.

⁴Wallin, J. E. Wallace. Who is Feeble-Minded? This Journal, January, 1916, Vol. VI. No. 5, pp. 706-716.

⁵Yerkes, Bridges and Hardwick. A Point Scale for Measuring Mental Ability, pp. 93 and 94.

⁶The term used by Dr. Yerkes for this ratio is "coefficient of intellectual ability." Since we are using Dr. Haines' norms for comparison, we have followed his terminology.

by the average score obtained from persons of the given age. Accepting as tentative norms, indicated though not conclusively proved by Dr. Yerkes' figures, 84 points for 16 years, 86 for 17 and 88 for 18 years or over, Dr. Haines requires for all a coefficient of mental ability of over 0.75: in other words for 16 year olds a score of over 63 points, for 17 year olds over $64\frac{1}{2}$ —and for all over 17 a score of over 66 points. His contention is that any individual whose actual score is more than 25% below the average of his age group probably represents sufficient deviation from the normal to be fairly considered feeble-minded.⁷

For the Stanford Revision the only suggested norm with which I am familiar is that of the mental quotient of .75 or over,⁸ a standard similar in principle to that offered by Dr. Haines for the Point Scale. The mental quotient represents the ratio between the actual record made by the individual with this scale and the record which he should have made—in this case the mental age corresponding with his physical age. For adults the age of 16 years is taken as the physical age to be considered in determining this quotient. We may therefore state this norm for adults as equivalent to a requirement that one attain at least a mental age of 12 years by the scale to avoid being classified as feeble-minded.

I have given thus detailed a statement of the standards which seem fairly open to consideration for the treatment of results obtained with the Binet group of tests in order that there may be no misunderstanding of the figures from our cases. The accompanying table (Table I) presents the proportion of cases that we should call feeble-minded if we employ one or another of the above mentioned standards. It will be seen that these range from 34% to 100%, or, if we drop entirely from consideration the classical 12-year-old Binet standard, even so from 34% to 65%. If the same investigators working with the same girls can obtain so wide a range of figures according to the standards applied, it is not surprising that such startling variations exist in the answers to the question regarding percentages of feeble-minded from different individuals working with different groups.

⁷Haines, Thomas H. *Mental Examination of Juvenile Delinquents*. Publication No. 7 of the Ohio Board of Administration.

⁸Since this paper was given, Dr. Terman's book has appeared with the following statement (p. 81): "All who test below 70 I. Q. by the Stanford revision of the Binet-Simon scale should be considered feeble-minded, and it is an open question whether it would not be justifiable to consider 75 I. Q. as the lower limit of 'normal' intelligence. Certainly a large proportion falling between 70 and 75 can hardly be classed as other than feeble-minded, even according to the social criterion."

TABLE I.

PERCENTAGE OF FEEBLE-MINDED AMONG 100 BEDFORD INMATES
ACCORDING TO THE VARIOUS STANDARDS RECOM-
MENDED BY DIFFERENT AUTHORITIES.

<i>Below 12 years</i> by the Binet-Simon Scale, 1911 form (15-year and adult tests used)	88% ⁹
<i>Below 12 years</i> by Goddard Revision of Binet-Simon Scale, 1911 form (15-year and adult tests not used)	100% ⁹
<i>Below 10 4/5 years</i> by Goddard Revision of Binet-Simon Scale, 1911 form (15-year and adult tests not used). Approximately the standard suggested by Kohs	65%
<i>Below 10 years</i> by the Binet-Simon Scale, 1911 form (15-year and adult tests used)	41%
<i>Below 10 years</i> by the Goddard Revision of the Binet-Simon Scale, 1911 form (15-year and adult tests not used)	34%
<i>Below 75 points</i> by Yerkes-Bridges Point Scale.....	65% ¹⁰
<i>Having a coefficient of mental ability of 0.75 or less</i> by the Yerkes-Bridges Point Scale. Standard suggested by Dr. Haines.....	38%
<i>Having a mental quotient of less than 0.75, or a mental age of less than 12 years</i> by the Stanford Revision. Standard used by Dr. Terman ¹¹ ..	65%
<i>Having a mental quotient of less than 0.70, or a mental age of less than 11 years 2 months</i> by the Stanford Revision. Standard used by Dr. Terman ¹¹	48%

I said at the beginning of this paper that the variation among workers was itself a promising feature of the present situation. This point I still maintain even in the face of such discrepancy as appears here. Even if this variation serves only to call a halt on our dogmatism, to render us a little less glib in our assertions and to bring home to us the still unsettled problems in this field, it has at least performed one useful function. There is, however, a further point to note regarding the nature of this discrepancy. It is no longer an indefinite disagreement which can be resolved no further than to the point of difference in personal opinion, which itself is based on factors largely intangible and incapable of estimation. Even if we are not yet ready to answer the question as to where we shall draw the upper line of feeble-mindedness and so to decide what percentages to give as defective, it is a distinct advance to be able to say that a given percentage are feeble-minded according to the standards of any given authority. We can by this means at least compare our different groups with some measure of accuracy, whereas before it was the investigators as much as the groups which constituted the variable elements.

⁹Cited as having historical interest only.

¹⁰Tentative suggestion only of Dr. Yerkes.

¹¹See footnote No. 8.

In this connection, I would call attention to one further point of interest in Table I. When methods as disparate as the original Binet Scale, the Point Scale and the Stanford Revision are used, it is desirable to discover whether we can in any way make connections between our various results. The superficial similarity in age norms used is wholly misleading. A mental age of 10 years does not mean the same thing, by the Binet Scale in its simple form, as does this same age obtained by the Stanford Revision. The fact that the median mental age of our group by the Stanford Revision is 11 years, 2½ months, whereas by the Binet-Simon Scale for the same individuals it is 10.2 years, is illustrative of this fact. Another basis of comparison must therefore be sought, if any comparison of the results of these different tests is to be attempted. As a tentative basis for such a comparison, I would suggest similarity in the percentages attaining any given rank.¹²

From Table I it is clear that a similar degree of rigidity is represented by setting up as a standard of normality 10.8 years¹³ as determined by the Goddard form of the Binet-Simon Scale, 75 points obtained by the Yerkes-Bridges Point Scale, or a mental quotient of .75 by the Stanford Revision. These, in fact, all yield the result of 65% of the total group. * (The identity here should not be stressed since that is a chance outcome, and a *similarity* rather than an *identity* is to be looked for.) The conclusion is therefore clear that we may consider any figures based on one of these three standards closely comparable with those based on any other of these. As an indication that one of these, and probably therefore all three, are over-severe in character, it is desirable to consider Dr. Woolley's data on 50 working girls of 18 years who were examined by the Cincinnati Vocational Bureau. Of these 26% fell below the standard of 75 points by the Yerkes-Bridges Scale. According to recent figures on 100 cases which she has kindly furnished me, a still larger number, or 33%, fail to measure up to this requirement. This last-mentioned group of 100 is somewhat over-balanced toward the lower end since 58 were below the median of the total group of working children as measured by other tests, and only 42 were above. Even so, a proportion of 33%

¹²The valuable discussion by Pintner and Paterson which has appeared since this paper was given, develops in great detail the idea of a percentage basis for the diagnosis of feeble-mindedness. Pintner, R. and Paterson, D. G., A Psychological Basis for the Diagnosis of Feeble-mindedness. This Journal, May, 1916, Vol. VII, No. 1, pp. 31-55.

¹³It should be noted that this is not exactly Kohs' standard since he includes a certain number of those ranking from 10.8 to 11.2 years inclusive in his group of feeble-minded.

of these working girls cannot be described as feeble-minded without necessitating an extensive revision of the meaning of this term. Even when we turn to the more conservative standard of Dr. Haines, we find 16% of Dr. Woolley's 100 girls failing to measure up to it. Whether this is an exorbitant estimate or not can only be answered satisfactorily when fuller information is at hand regarding those who drop below the normal, information which will tell us how successfully they are earning their livings, and whether they are managing themselves and their affairs with ordinary prudence, or on the other hand how much supervision and oversight has been required to keep them up on their own responsibility.

Without passing judgment, therefore, as between these various standards, it seems clear that in the face of these disagreements and in the absence of full knowledge of the higher grades of mental defect, we shall do well to hold to one of the more conservative grounds of judgment. We can do this without lessening the forcefulness of our plea for more adequate provision in the way of further custodial institutions. Even if we reduce our estimate somewhat below the 38% indicated by the standards which Dr. Haines suggests, we have an appalling situation when we realize that we are doing nothing, or next to nothing, to prevent these clear defectives from going back from our institutions to the easy life of the streets with its lack of demand on intellectual powers, which seems to offer them their only future. We do not weaken the argument to my mind when we reduce its application to those cases regarding which there can be no dispute. When we have reached even an approximate solution of this problem, we can undertake to determine what disposition we can best make of the large group of questionable and borderline cases, and it is to be hoped that we shall then have more knowledge of these cases to bring to bear on their problems.

The further points of this paper were presented in connection with graphs of our results not published with this report. I merely state in dogmatic form at this time the main points which were brought out in connection with the figures there presented.

1. Any comparison of our group as a whole with an approximately normal group serves to show conclusively that ours is an inferior group mentally. We have fewer individuals of superior ability and more of distinctly inferior capacity than we find in any more nearly unselected group.

2. In spite of this difference in range of ability, and the over-weighting of our group in the direction of poorer performance, the

further fact appears that there is a large amount of overlapping of our group with any such assemblage of normal cases. The fact of this over-lapping must be carefully considered before we accept any basis of diagnosis for such a special class as the delinquents which would, by all the force of scientific exactness, designate as feeble-minded large numbers of the working class who may perhaps be concerned primarily with drudgery and monotonous tasks rather than with the brilliant types of performances, but who nevertheless are succeeding in making a decent living and managing themselves and their affairs with ordinary prudence and without an undue amount of supervision from without.

3. Additional tests for diagnostic purposes should be worked out with the most careful standardization possible, in order that we may have recourse to more than one instrument of measurement, no matter how perfect that instrument may eventually become. Only thus can we pretend to guard against the factors of communication from one person to another and habituation to the tests through a long succession of Binet experiences.

In selecting such tests there are certain things which we must require. First of these is standardization with normal or unselected groups. Second, the test must show a clear, though not necessarily an absolute, distinction between the results of the unquestionably feeble-minded and the unquestionably normal. A test in which the feeble-minded make approximately as good records as the normal may be worth while as indicating what possibilities the feeble-minded have, but it is clearly lacking in diagnostic value. Third, for the widest usefulness a test should have large enough possibilities of gradation so that it is possible for the superior individuals to exhibit a performance above the average and for the lowest grade to deviate below this. By having our tests too easy or too hard, we may eliminate one or the other of these distinctions. Finally, it is important that the selection of such a group of tests be partly determined by the range of abilities which they cover. Thus it is important that certain tests definitely utilize the language element, but equally important that these be supplemented by others, so-called performance tests in which the language factor is eliminated or reduced to a minimum. There should be some tests involving memory, others based on ability to follow instructions, others requiring ingenuity in the meeting of new situations, capacity to reason concerning concrete or abstract problems, etc.

4. In addition to these tests valued primarily for their diagnostic services we should likewise be developing tests which may furnish

information regarding the specific capacities of the individuals whom we are studying. These may fail to make sharp distinctions between feeble-minded and normal, and yet add in many important ways to our understanding of the individual. Real development in these directions would of course carry us also into the field of tests for vocational fitness.